

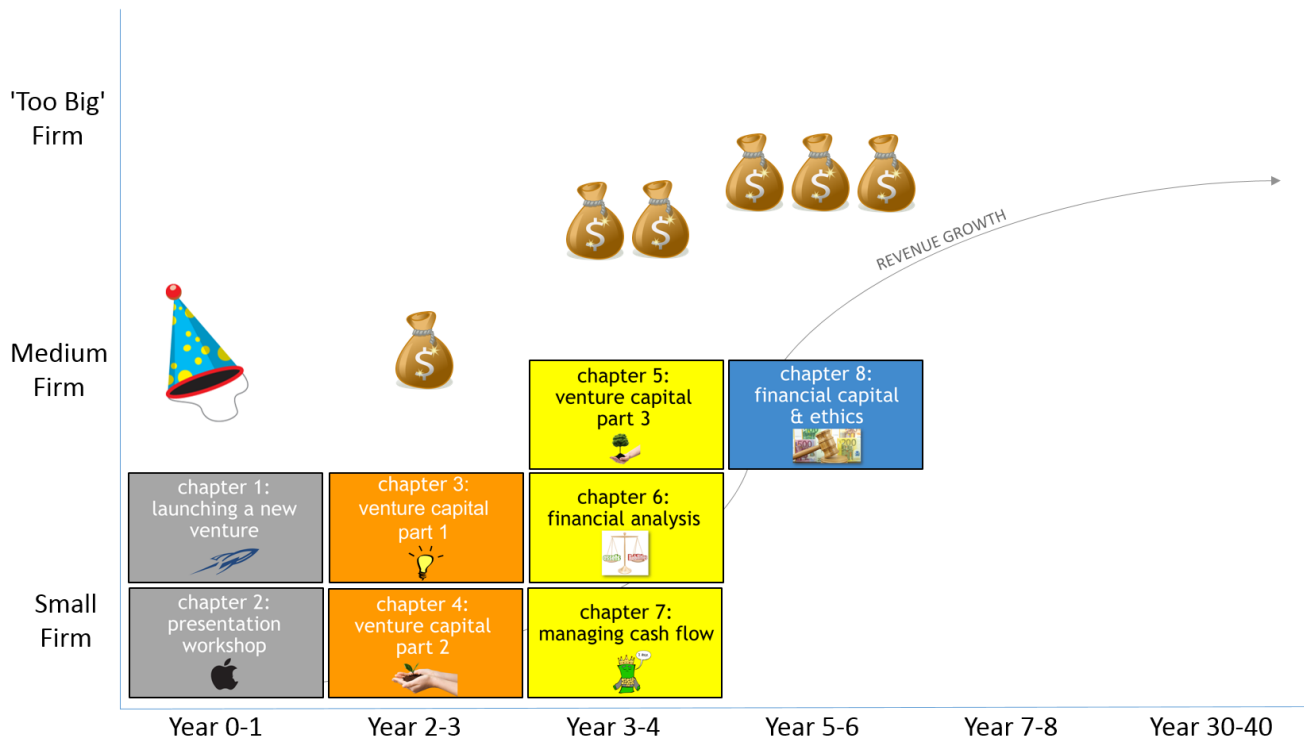
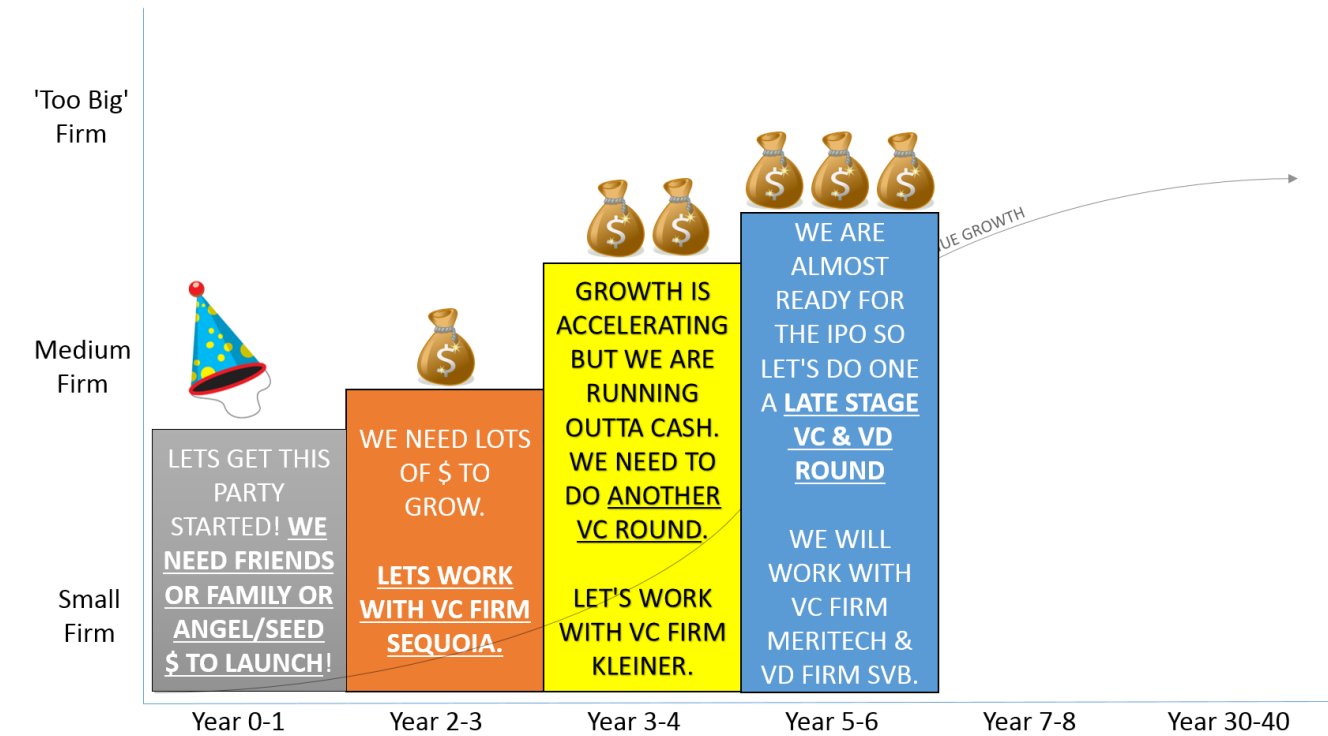
CHAPTER 8: FINANCIAL CAPITAL AND SECURITIES LAWS

"It takes 20 years to build a reputation and five minutes to ruin it. If you think about that, you'll do things differently."

- Warren Buffett

chapter 8:
financial capital
& ethics





be passionate about your
work....set high standards for
yourself...

find your passion and you will
never have a job.

Please set very high standards for your work and only do what you are most passionate about in business and in life. www.tiny.cc/chris65

ETHICS IN FINANCE

It is so easy to break the law in finance. A short quick buck is never worth it in the long run. www.tiny.cc/chris66



Goldman
Sachs



I have a lot of respect for Goldman Sachs, where I worked for 5 years. I will never forget my first day of work there. They told us “Welcome to Goldman Sachs. You have a greater chance of causing harm than good to this company. Don’t ever do anything that can get you or this firm on the front page of the Wall Street Journal.” Then they fingerprinted us.

If you think someone is unethical in business, avoid them at all costs. www.tiny.cc/chris67 . Raj Rajaratnam started a hedge fund called Galleon and he is in jail today. He is in jail because of greed and a lack of business ethics. He broke many securities laws and the FBI raided his company.

THE FBI
 FEDERAL BUREAU OF INVESTIGATION

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Manhattan U.S. Attorney Charges 14 Defendants with More Than \$20 Million in Insider Trading

Charged Defendants Include Hedge Fund Managers, Trading Firm Executives, Lawyers, and Corporate Insiders; Five Already Have Plead Guilty To Insider Trading Charges

U.S. Attorney's Office
 November 05, 2009

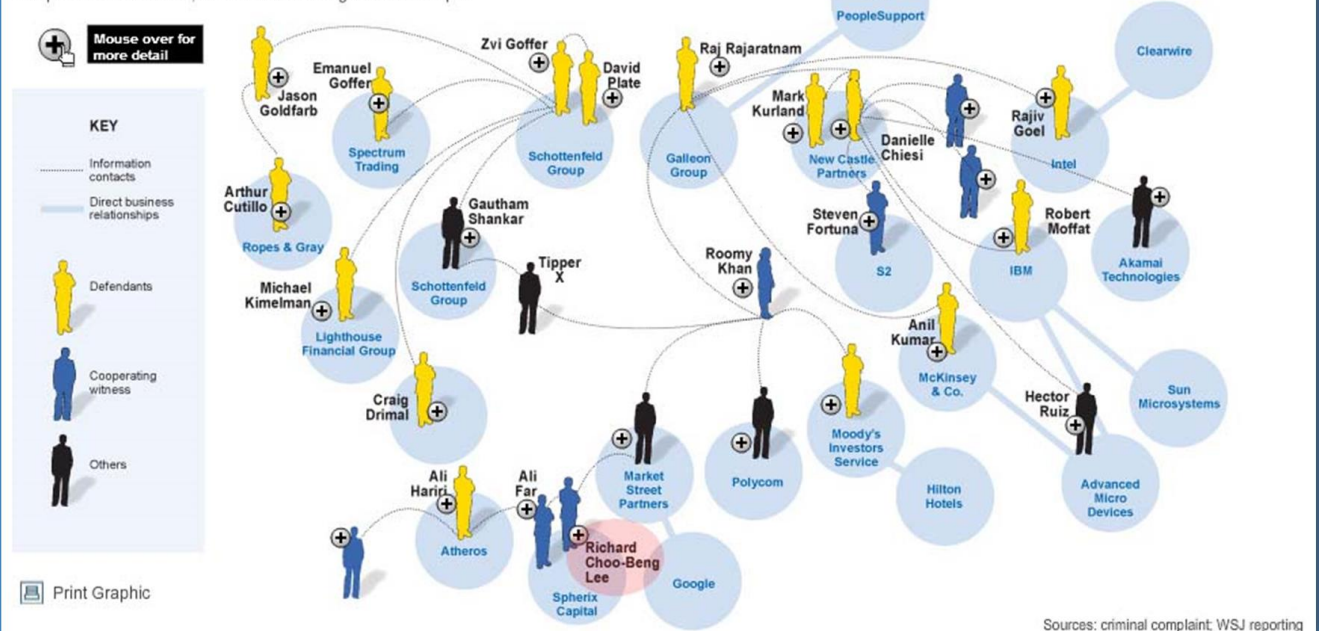
Southern District of New York
 (212) 637-2600

PREET BHARARA, the United States Attorney for the Southern District of New York, and JOSEPH DEMAREST, JR., the Assistant Director-in-Charge of the New York Office of the Federal Bureau of Investigation ("FBI"), today announced charges against 14 additional Wall Street professionals and attorneys arising out of their ongoing investigation of insider trading at hedge funds and stock trading firms. The charged defendants include hedge fund managers and trading firm executives, lawyers, and corporate insiders. Five of the charged defendants previously pleaded guilty to insider trading charges in Manhattan federal court. The defendants collectively are charged with allegedly participating in insider trading schemes that generated more than \$20 million in illegal profits.

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Galleon's Web

Criminal complaints and developing disclosures in the Galleon insider trading case allege a far-reaching and complex scheme. Below, the known and alleged relationships.



Many people were tied up in the Galleon scandal on Wall Street and Silicon Valley. Don't ever compromise your integrity in business. If you think someone might be unethical, again please avoid them at all costs.

email & phone calls are 4 ever

Assume that every email and every call that you conduct in business is recorded.

FINANCIAL CAPITAL

There is a big difference between finance and accounting.

finance & accounting
differences

accounting is more focused on
accrued revs & expenses

Accounting is more focused on recording revenue that you recognized ('accrued') or expenses that have taken place.

finance is more focused on
cash revs & expenses

finance is more focused on
the cost of capital



In finance we focus a bit more on projections and real cash earnings and real expenses.

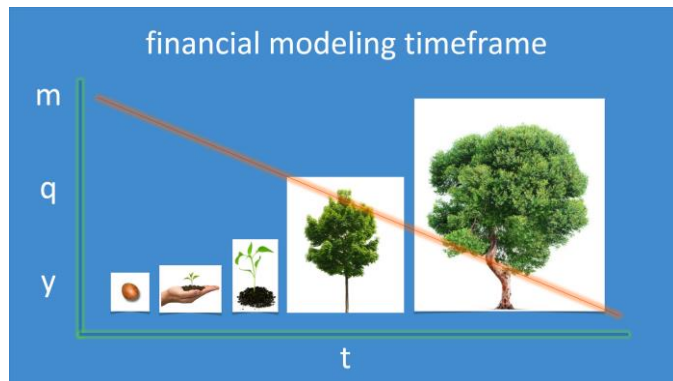
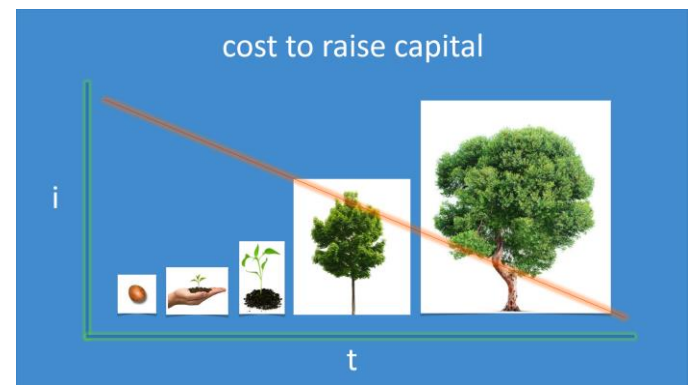
finance is more focused on
the cost of equity
(qualitative too)



Accounting is a science. Finance is a science and an art. Accounting is quantitative. Finance is quantitative and qualitative.

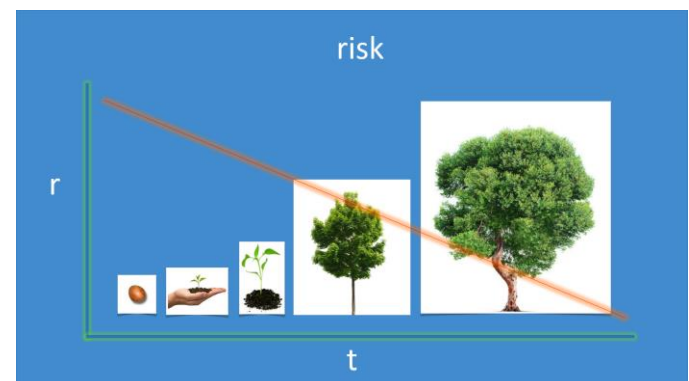
Let's analyze the differences between early stage companies ('seed') and late stage companies (ones that might be publicly traded on the stock market). The x axis is t =time:

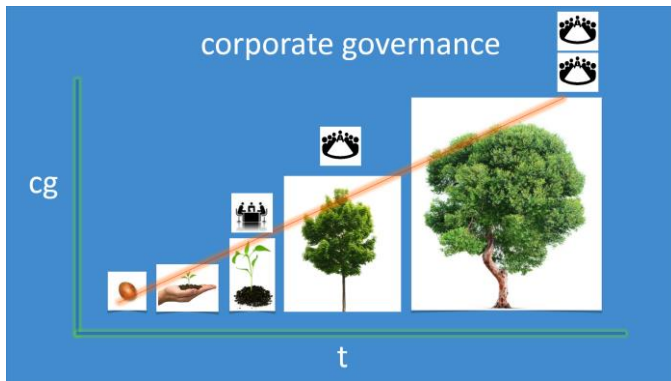
The cost to raise money (i =interest) is always lower for a company that is mature and has been in business for a long time (common sense I know).



Earlier stage companies tend to look at cash flow on a monthly basis. Companies that have been in business for a few years look a bit more at quarterly cash flow. Companies that have been in business for a long time often look at annual cash flow metrics.

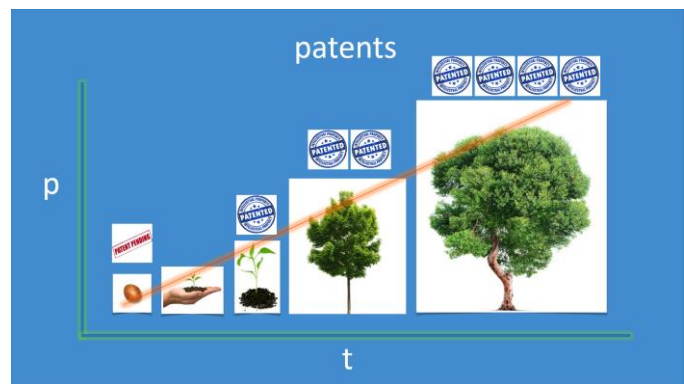
To state the obvious, earlier stage companies have much more risk than companies that have been in business for years.





Older companies have much more corporate governance than earlier stage companies. This means that they have more checks and balances in place like a larger board of directors who have a fiduciary duty or a fiscal responsibility to their shareholders.

Older companies usually also have many more patents to protect their intellectual property.



debt.

Early stage companies should NEVER use debt to grow. Why? Because if you miss just one payment, the banks don't give a damn and they could make your business go belly up.

The interest rate for companies that are more seasoned and want to get a loan is determined by analyzing liquidity risk, inflation risk, default risk and maturity (time) risk.

nominal interest rate

=

interest rate of a bank loan

what about:

- ☒ liquidity risk
- ☒ inflation risk
- ☒ default risk
- ☒ maturity (time) risk

cost of debt =

- a) ☒ liquidity risk
- b) ☒ inflation risk
- c) ☒ default risk
- d) ☒ maturity (time) risk

cost of debt =

a) + b) + c) + d)
+ the real interest rate

what is the lowest risk interest rate?



literally no default risk.

The lowest interest rate is usually the rate on US government as this entity has the lowest risk of defaulting.

risk free rate
=

real rate of interest
+
inflation premium

what the heck is a yield curve
and why does it matter?

A yield curve is a chart that shows you what the interest rate is over time. Let's build one from scratch:

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U.S. DEPARTMENT OF THE TREASURY

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Daily Treasury Yield Curve Rates

Get updates to this content.

XML These data are also available in XML format by clicking on the XML icon.
XSD The schema for the XML is available in XSD format by clicking on the XSD icon.

If you are having trouble viewing the above XML in your browser, click here.

To access interest rate data in the legacy XML format and the corresponding XSD schema, click here.

Select type of Interest Rate Data
Daily Treasury Yield Curve Rates

Select Time Period
Current Month

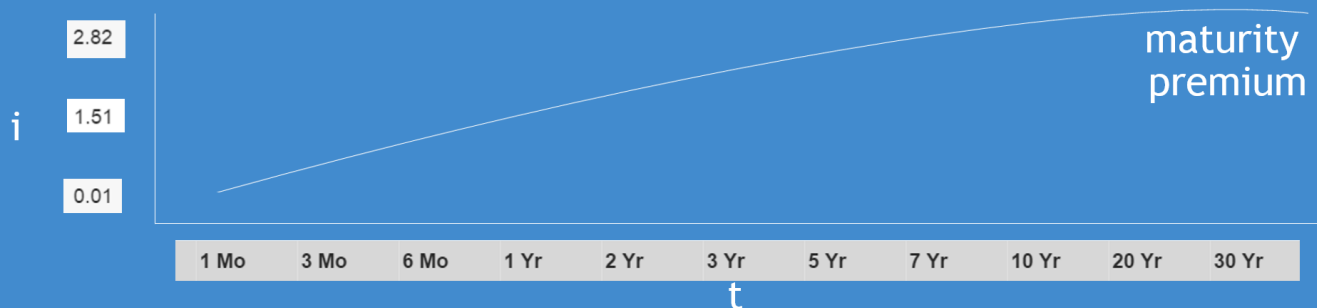
Date	1 Mo	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr	7 Yr	10 Yr	20 Yr	30 Yr
05/01/15	0.00	0.01	0.05	0.25	0.60	0.97	1.50	1.87	2.12	2.57	2.82
05/04/15	0.01	0.02	0.08	0.25	0.60	0.96	1.51	1.90	2.16	2.62	2.88
05/05/15	0.01	0.01	0.08	0.24	0.62	1.00	1.54	1.92	2.19	2.64	2.90

Select type of Interest Rate Data
Daily Treasury Yield Curve Rates

Select Time Period
Current Month

Date	1 Mo	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr	7 Yr	10 Yr	20 Yr	30 Yr
05/01/15	0.00	0.01	0.05	0.25	0.60	0.97	1.50	1.87	2.12	2.57	2.82
05/04/15	0.01	0.02	0.08	0.25	0.60	0.96	1.51	1.90	2.16	2.62	2.88
05/05/15	0.01	0.01	0.08	0.24	0.62	1.00	1.54	1.92	2.19	2.64	2.90

let's draw a yield curve



Great. Now we know how to calculate what government interest rates will be over time. What about inflation? We can calculate it online:

www.tiny.cc/chris69

The screenshot shows a web browser window with the URL `data.bls.gov/cgi-bin/cpi/calc.pl?cost1=10.00&year1=1991&year2=2015`. The page title is "CPI Inflation Calculator". The input fields show a starting value of \$10.00 in 1991. The text "Has the same buying power as:" is followed by a result box showing \$17.37 in 2015. A "Calculate" button is at the bottom.

risk free rate
=
0.24%
+
inflation premium %

The screenshot shows the same "CPI Inflation Calculator" but with the start year changed to 2014. The input fields show a starting value of \$10.00 in 2014. The text "Has the same buying power as:" is followed by a result box showing \$9.99 in 2015. A "Calculate" button is at the bottom. The text "wow! trouble?" is written in orange at the bottom right.

In 2014 per the previous image, I saw that we were temporarily in a deflationary environment. Wow! This is a big deal. Why? Because governments only raise interest rates if the economy is doing well. In fact, until recently interest rates had not increased for literally 9 years! From 2006 until 2015 rates were declining and near zero as the global economy had anemic growth.

Why does this matter? Because you need to understand global macroeconomics in order to understand what interest rate you will be getting. If the economy sucks, rates are usually low. Why? Because the

government wants to encourage economic growth by having low rates so companies will borrow and invest in growing their company.

When the economy is doing incredibly well, then demand for goods and services is high and, as a result, prices go up. This is called inflation. In an effort to cool down the economy, the government likes to raise rates so that prices don't go up much. They raise rates so that they can later cut rates if the economy is not doing well.

What does raising rates really mean? Well the government raises interest rates by selling bonds to the public. By selling bonds to the public the public gives the government money, in exchange for a piece of paper saying that the government owes the buyer the money back plus interest. The government then takes this money out of circulation. If there is less money out there, then demand for money goes up (or the money supply goes down), which means the interest rates banks charge for borrowing money goes up. This is called supply and demand. I won't nerd out on economic stuff, but just keep in mind that if there is a scarcity of a product like diamonds, then the price of that product goes up. Just like with money. If there is less money in circulation, then the price of money goes up. This means demand for money goes up as the supply decreases and, hence, the interest rate rises for borrowing money.

You need to understand these concepts because one day you might borrow money to buy a house or to expand your business empire. **Let's talk about what happened in 2008. We were literally 24 hours away from bank machines not working then!**

too big to fail?
why rates are still low...
....2008 crisis explained

I recommend that you all watch the movie "Too Big to Fail".

www.tiny.cc/chris70

www.tiny.cc/chris71

Fortunately, reckless unethical business practices that pushed us into the "great recession" in 2008 will never occur again.

nobody could get loans then...
...we were within 24 hours of
all
ATMs not working

Up until recently, deflation was flat or even slightly negative!

risk free rate

=

0.24%

+

-0.001 %

however, that inflation rate was for today. we all know inflation will be higher in the future and we all know that nobody will lend to us at that rate.

we live in interesting times.....

no wonder venture capital and real estate and the stock market are in a bubble!

Because rates are so incredibly low, housing prices are high. Why? Because you pay next to nothing for a loan. The government tried to save the economy by making rates (or the cost of capital) very low. As a result, people borrow money to invest in houses or less liquid venture capital investments etc.

Business is highly cyclical. Once rates rise a bunch (and they will one day), then people will prefer to

keep money in the bank as rates are higher and they can make money on the interest rate that the bank is providing them. As a result, fewer people will buy houses or invest in illiquid investments when rates go up a bunch.

Recall that we calculated using the yield curve that the cost of capital (or interest rate) is about 0.24%. This doesn't mean that you can borrow from the bank or the government at only 0.24%. Why? Because the lender needs to account for the risks associated with lending to you or to a company by looking at various risk factors, including liquidity risk, inflation risk, default risk and maturity (or time) risk.

does this mean I can borrow for just under 0.24% per year?

heck no!

heck no because of:

- ☒ liquidity risk
- ☒ inflation risk
- ☒ default risk
- ☒ maturity (time) risk

cost of debt =

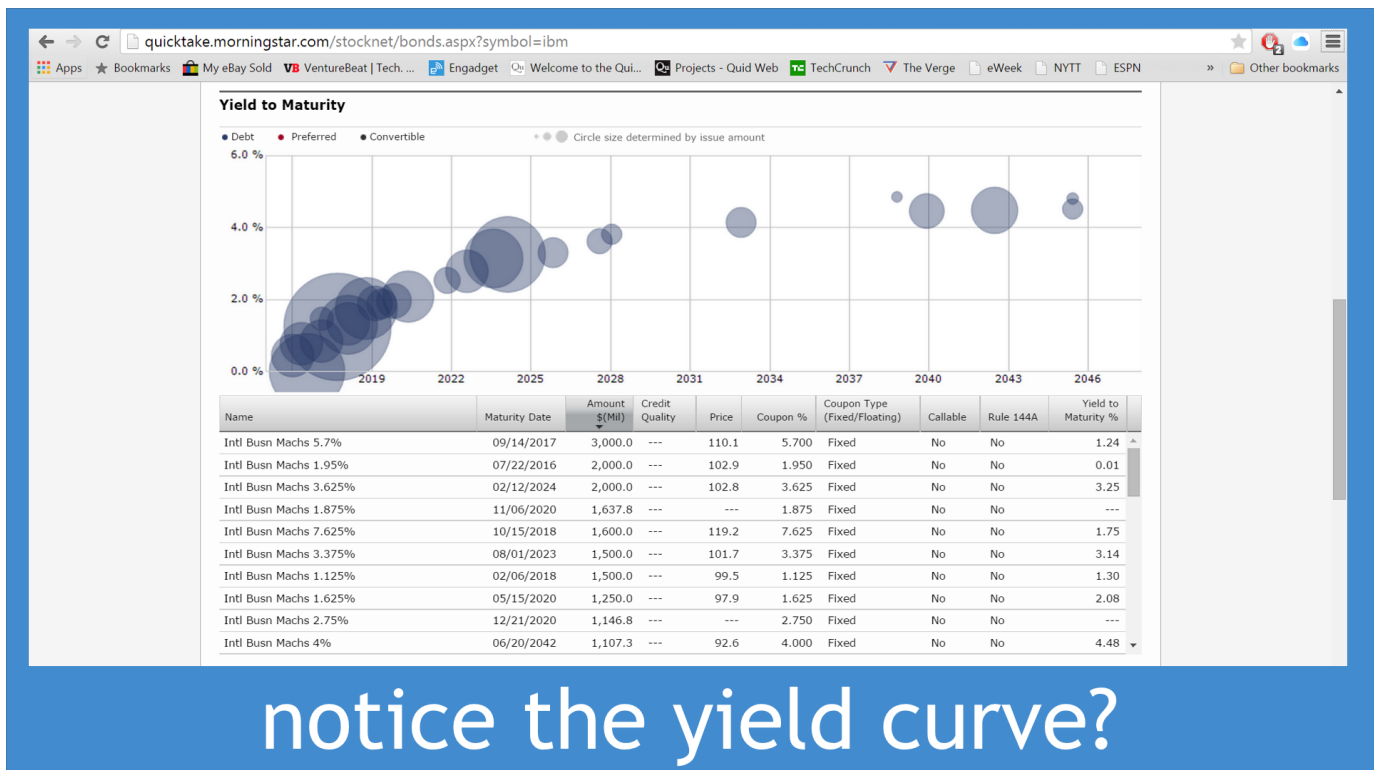
a) + b) + c) + d)

+ the real interest rate

This is all a bit complex and theoretical. Don't worry, you don't need to memorize all of this. Give me a few slides to explain why.

IBM is a mature company with a long history and a decent balance sheet. They are fiscally conservative. How can we tell what interest rate they should pay?

a mature, cash rich company would pay a lower cost of debt



Well we can look at IBM's yield curve! We can even buy bonds from IBM and they will pay you an interest rate in return that is higher than the US government's rate as IBM has a higher risk of defaulting than the US government does.

let's just keep it simple...

we all just refer to banks lending at the “prime” rate for their best customers and “prime plus X” for higher risk customers.

in the real world all this default risk math is a waste of time....

....because we all just rely on ratings agencies like s&p and moody's

aaa is the best rating....

then aa

a

bbb

bb

b

ccc...etc

bbb and higher
=
investment grade

anything lower =
junk bond
or
“high yield”

investment grade means the DRP
(default risk premium) is
<1% above us treasuries rate.

the DRP on junk bonds is 5% above treasury rates.

early stage companies pay junk bond rates....hence their preference for equity/vc financing

when interest rates are low many companies are born.

if inflation is high (as in the early 80s), startups aren't born.



1990s

In the 1990s an amazing thing happened. We had amazing economic growth and interest rates were low! Why? Because even though demand for goods and services were high, inflation was low! Why? Because in the late 1980s the Berlin Wall fell and all of this awesome cheap and brilliant Eastern European labor moved west into first world countries. As a result, the cost of labor didn't rise much. Labor is the biggest

input in inflation statistics. For more information on this topics, please see the Berlin Wall section in the last chapter of this book.

if debt is secured via access to assets upon default, then this is called senior debt...

if not, then it is called subordinated debt

Wow this chapter is heavy! www.tiny.cc/chris72

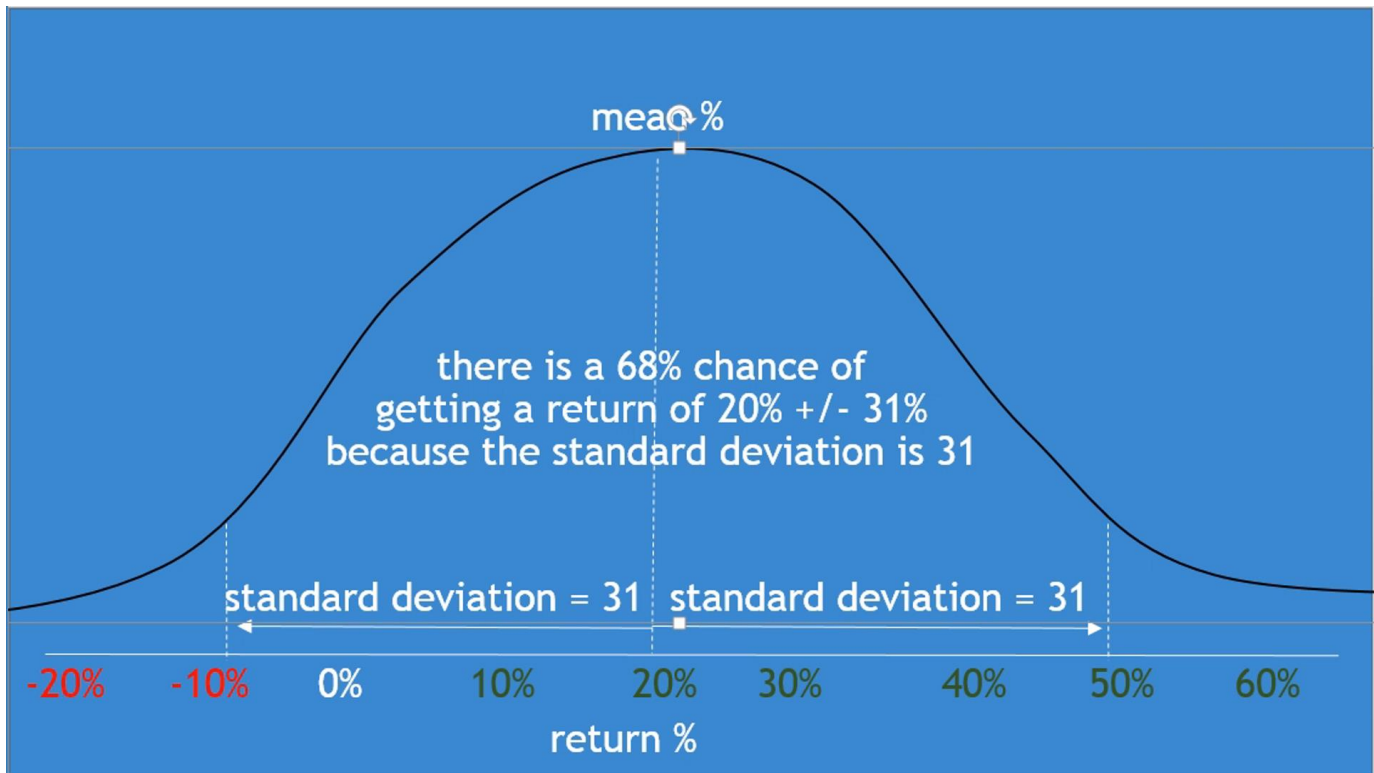
RISK AND RETURN

risk adverse lenders prefer to lend to the investment with the lower standard deviation.

Remember all that standard deviation statistics crap you learned but never thought you would ever apply in real life? Well now we can! Lenders like to lend to firms that have lower risk or have a lower standard deviation. When we look at stocks and we calculate what they might make us, we call this the 'expected return' which is the return % we expect to receive.

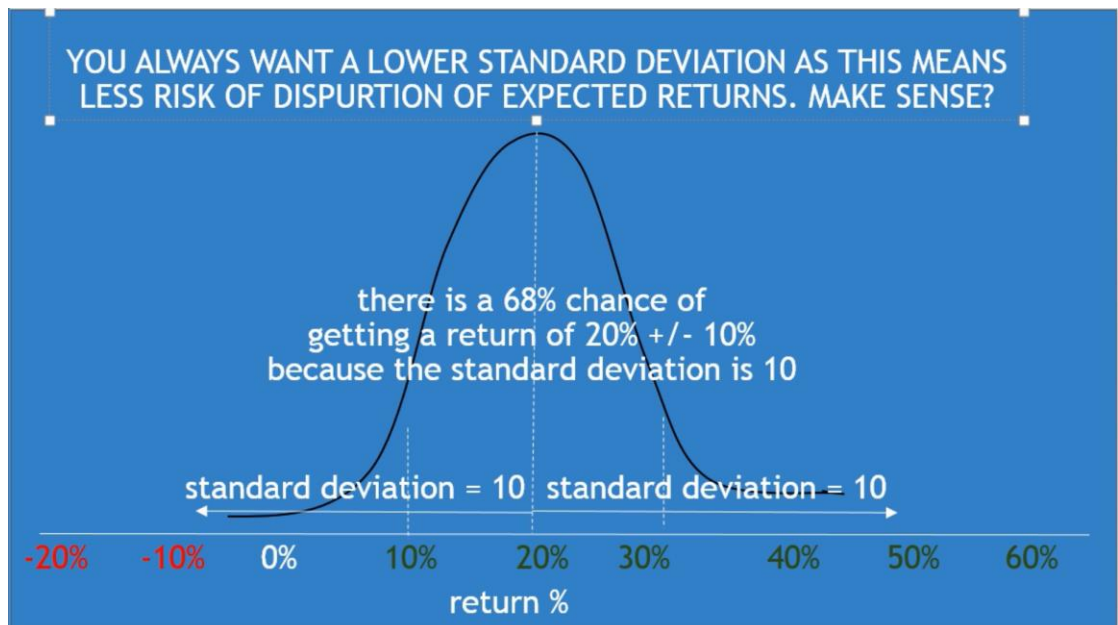
However, when we analyze a lot of data, we find that some stocks go up and down a lot more than others. This up and down movement is called volatility and the standard deviation measures the magnitude of this up and down behavior!

Again, this up and down behavior is a measure of risk.



If I tell you that a stock has an average or 'mean' return to investors of 20% with a standard deviation of 31, then this means that 68% of the potential returns on investment in this stock will be 20% plus or minus 31%. So the stock that returns 20% has a risk or 1 standard deviation probability of making you

51% or losing you 11%. One standard deviation means 68% of all data points are within the average plus one standard deviation. Now 2 standard deviations means that 98% of your data points will lie within 2



standard deviations. This means that 98% of our investment scenarios will return up 20% +/- 62 (or 31 times 2). You always want the standard deviation (which measures risk) to be as low as possible.

ok i understand that
standard deviation means
how spread out returns
are....but is there a formula
to measure risk and returns?

yes!
$$\frac{\text{standard deviation}}{\text{expected return}}$$

=
how much risk i am taking
on per unit of return!

COST OF EQUITY CAPITAL

we expect public equity returns to =

the risk free rate (includes inflation)

+

the volatility of the company versus the market

x

how much we expect stocks to outperform government bonds

we expect equity returns to =

the risk free rate (includes inflation)

+

B

x

how much we expect stocks to outperform government bonds

The beta means how volatile a stock is relative to the market. We will cover this later in this book in much more detail.

how do we calculate the
cost of capital if we use
equity AND debt?

wacc
=
weighted average cost of capital

I am not going to go into too much detail on this concept yet because reality is much different. As most investors calculate the interest rate in debt instruments using 3rd party companies like Moody's or Standard and Poors. When it comes to equity investment returns, many venture capital firms look for a 5 x 5., which means that they would like the underlying investment to return 500% within 5 years. Why so high? Because many venture capital investments go to zero.

reality can be much different from the
last few pages.....

vc expects 5x5

debt uses moody's

equity pm's look at portfolio
construction

SECURITIES LAW AND VENTURE FINANCING

If you end up starting an investment firm (or working for one) you need to understand the rules. You can take government sponsored exams to help you with understanding the rules, like the Series 7 exam.

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it's not hard to break the
law by accident....

....if you do, your sentence
could be the same as the
sentence of a murderer.
no joke....as insane as that
sounds.

ignorance of the [securities]
law is no excuse.

securities laws:

1: prospective investors must receive all relevant information before investing. [S1 etc.]

2: if you have been defrauded, you should receive compensation. [class action lawsuits]

3: insider information for publicly traded stocks is illegal and results in prison. [no excuses]

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securities act of 1933

created as the stock market crash in the 20s created the great depression

laws set by act are governed by the sec

laws haven't really changed since then

securities exchange act of 1934

laws on inside information

investment company act of 1940

regulates pools of capital including vc....although vc firms aren't that regulated by the sec and neither are hedge funds.

investment advisor act of 1940

laws for brokers and banks

Questions Based on Chapter 8:

1: A mature company has a higher cost of capital:

True or False

2: Early stage investments are more risky than later stage investments.

True or False

3: Corporate governance is usually superior at later stage companies than early stage companies.

True or False

4: The lowest risk interest rate is usually:

- a) IBM's bonds
- b) Facebook's bonds
- c) Goldman's bonds
- d) US Treasury securities

5: Yield curves include information on:

- a) Equity volatility
- b) Corporate governance metrics
- c) Standard deviation risk metrics
- d) Interest rates

CHAPTER SUMMARY



Chris Haroun @chris_haroun

mature firms have many financing options. start-ups do not. we learned about expected debt and equity returns and risk metrics. ignorance of sec laws = no excuse. **ethics**.

